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ABSTRACT

The purpose of this paper is two-fold: first, to summarize the deficiencies of data available on summer schools; and second, to provide a context for analyzing and interpreting the results from the several evaluations that do exist. The paper also reviews the studies that have been completed on summer schools and takes a closer look at the following four programs: (1) Head Start; (2) Chapter 1 Regular (i.e., programs for regular term students served by the Education Consolidation and Improvement Act of 1981); (3) Chapter 1 Migrant; and (4) Programs for the Handicapped. On the whole, there is little information on existing summer school programs. This absence of appropriate comparisons means the following is lacking: information on how compensatory education programs change the educational context, and a valid model of learning rates over time. The best evidence that does exist on the effectiveness of summer programs suggest that they are not unequivocally successful. The two major problems tend to be that the programs are short, voluntary half-day interventions with little semblance to regular programs; and that there are no clear criteria for effectiveness. Two graphs demonstrating student improvement and 79 references are included. (PS)

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SUMMER PROGRAMS AND COMPENSATORY EDUCATION: THE FUTURE OF AN IDEA

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SUMMER PROGRAMS AND COMPENSATORY EDUCATION:
THE FUTURE OF AN IDEA

Summer schools have been a strategy of educational remediation, reform, and enrichment for over a century and a half. The traditional school calendar was shaped by the rhythms of an agrarian society; schools opened after harvest and closed in time for spring planting. By the mid-nineteenth century, however, a school year based solely on agriculture seemed archaic. Urban areas, crowded with immigrants and refugees from rural areas both here and abroad, were under some pressure to keep children and youth occupied year-round. School began offering recreation programs, language training, and a host of special programs during the summer. In 1841, according to a government study, many cities including Baltimore, Buffalo, Cincinnati, Detroit, New York, Philadelphia, and Washington were operating on an eleven-month year (Dougherty, 1981).

Interest in the potential of summer school programs seems to be episodic. In times or places in which schools are overcrowded, or teachers scarce, a "fourth quarter" or an "extended year" are proposed as solutions (Anderson, 1972; Maynard, 1952; Miller, 1965; Rice, 1970; Richmond & Riegel, 1974). When increased heating costs and utility bills threaten to dominate educational budgets, the summer is presented as a more cost-effective season for schooling than the winter (Barnette, 1978). Summer is typically viewed as both an opportunity to remedy the deficiencies of regular schooling and a time to augment, enhance, accelerate, or enrich regular programs, for both individual students and schools. Hence, advocates of summer programs stress the potential gains for children who are falling behind as well as the benefits for those eager to move ahead.

The popularity and the curricular thrust of summer programs seem to mirror the mood in education generally, and to be responsive to the allocation of Federal funds. The passage of the Elementary and Secondary Education Act in 1965 stimulated many new summer programs (Nolte, 1966). Programs have focused on students lacking basic skills or English language competency, as well as special programs in math, science, and foreign languages (Scola, 1970; Shane & Nelson, 1974). Many, perhaps most, summer programs are targeted to particular groups; the groups include, but are not limited to low achievers; bilingual migrants; students making up failing grades in required courses; students interested in art, computers, or some other subject neglected in the regular program; handicapped students; and students judged to need compensatory education or remedial work.

A review of summer programs should ideally address the questions of what, why, where, how, and with what effort. Unfortunately, it is not possible to construct a meaningful taxonomy of summer programs on any of these dimensions. Descriptive accounts suggest that programs are at least as diverse as those found in regular nine-month programs, in terms of purpose, size, content, duration, and materials covered. Systematic accounts of the diversity, however, do not exist. The only large scale study of summer programs based on a nationally representative sample of schools was conducted in 1976; consequently, there are no recent data and no information on national trends over time. This is particularly regrettable in recent years. With large numbers of mothers employed full-time, one might expect an increase in parental demand. Alternatively, in times of retrenchment and conservative fiscal policy, summer schools may come to be viewed as an unnecessary luxury or a frill. Faced with such conflicting needs, it is not clear whether schools have expanded or curtailed programs.

The Sustaining Effects Study (SES) represents the only effort to scrutinize summer programs on a national scale (Carter, 1984; Klibanoff & Haggart, 1981); consequently, general information about availability, program content, enrollment, or the effects of summer programs must be gleaned from the dozen or more reports generated by this study. The Sustaining Effects Study collected data from 5,010 elementary school principals regarding the programs, policies and students in their schools in 1975-76, in order to select samples for further study as well as to establish national projections. The 15-item principal survey had an exceptionally high response rate, exceeding 99 percent. Summer school programs were available in over half (51 percent) of these schools. As one might expect, the single largest correlate of the availability of programs was size. Sixty-two percent of the elementary schools enrolling over 400 students offered summer programs, while only 46 percent of those with enrollments of 400 or less had programs available (Hoepfner, Wellisch, & Zagorski, 1977). There seems to be only a slight relationship between poverty and the availability of summer programs; however, schools with a concentration of minority students have more programs. In general, it seems both the least and the most advantaged students have a higher chance of attending summer school, although the differences are not great. These data are given in Table III-1.

The availability of programs does not, of course, tell us what kinds of programs were offered or who attended. In over half of the schools surveyed (52.1 percent), summer programs were entirely compensatory in nature; an additional third of the school (35.1 percent) offered regular or enriched programs as well. Only 12.8 percent of the summer programs offered only regular or enriched instruction (Hoepfner et al., 1977). The

Table III-1

Summer School Availability by School Characteristics, Sustaining Effects Study, Grades 1-6 1975-76

	SUMMER SCHOOL AVAILABLE
Percentage Minority Students	
0-19%	48.7
20-49%	56.2
50-79%	50.5
80-100%	60.2
Percentage Poverty Students	
0-20%	55.7
21-50%	44.3
51-100%	49.2
Percentage of Students Reading Below Grade Level	
0-20%	54.0
21-50%	46.4
51-100%	52.8
Compensatory Programs Funding Sources	
Title I ONLY	46.7
Title I and other	46.5
Other funds ONLY	59.9
No special funds	60.4

Source: Hoepfner et al. (1977): Tables VII-44; VII-48; VII-49; VII-50.

salience of compensatory education in summer schools is also evident in the reported sources of funds as well. Among the 52 schools studies in detail by the SES, 50 percent received Federal funds for summer programs; 44 percent was from Title I. Only 35 percent of the schools received no compensatory education funds. Seventy-nine percent of these schools offered instruction in remedial reading; 62 percent provided remedial math (Klibanoff & Haggart, 1981).

Although a slight majority of the schools surveyed (51 percent) reported that summer programs were available, the

majority of these programs were offered by a nearby school or in a district center; only 35.1 percent were actually located in the surveyed school. These figures imply that less than one elementary school in five actually offered a summer program. In both the SES study and in Atlanta, attendance probabilities were considerably higher when the programs were located in the school normally attended by the student (Klibanoff & Haggart, 1981; Heyns, 1978). Although precise attendance data is lacking, overall it appears that roughly 8 percent of all elementary students attended summer school in 1976, and that the majority of these (73 percent) attended the program in their own school (Hoepfner et al., 1977).

The effectiveness of these summer programs is the critical question for policy analysts and researchers. Since the SES data provide such a rich resource, it deserves special attention. Before presenting the findings on program effectiveness, however, it is worth reviewing the sources of national data on summer programs.

The Dearth of National Data

The single most striking fact about summer programs in the United States is how little is known about them. Whether one seeks data on enrollment trends, the size or distribution of programs by region; or information on the structure, content, costs, and policies pursued, no Federal agency collects or disseminates systematic records. The Common Core of Data (CCD) Survey administered by the National Center for Education Statistics makes no inquiry regarding the availability, the staffing, or the enrollment of summer programs. Although there may be a few states or local educational agencies (LEAs) that collect systematic information, there are surely many that do not. Moreover, there are no consistent definitions of program content. There is an enormous diversity in types of programs; the size, duration, educational goals, and target populations are quite varied. Neither the delivery system nor the services are uniform across schools. Thus, even if the National Center for Education Statistics were to include appropriate questions in their annual surveys, these data would be suspect.

The budget and staffing for summer programs are typically handled at the school or district level. Reimbursements from state and Federal sources tend to be small, and seldom, if ever, are the full costs of programs covered. Some states will subsidize required courses in high schools or particular compensatory programs; however, it appears that the majority of summer programs are largely self-supporting; tuition is paid by the students or their parents (Dougherty, 1981).

A wide range of summer staffing patterns is also prevalent. Regular teachers are typically given an opportunity to

apply, but salaries are not fixed by contract, nor subject to collective bargaining agreements. Some schools rely on student teachers, on parents or other non-credentialed aides, or even on volunteers to staff summer programs. Since programs must typically pay for themselves, a common pattern seems to be hiring staff contingent on fees paid at enrollment; in practice, this means that commitments for summer employment can be made only after classes have begun. Roughly 10 percent of all teachers reported summer employment in a school system in 1981 (National Education Association, 1982); however, this figure includes inservice training and course development, as well as actual summer teaching. Since many schools employ special summer staff, 10 percent is likely to be an underestimate of the number of teachers and classes operating in the summer.

Without centralized budgetary or staffing provisions, state and district policies toward attendance in summer school appear highly various if not erratic. Indeed, since there are few incentives or subsidies based on average daily attendance, and since programs are generally construed as voluntary, many summer programs do not even take roll on a daily basis.

Summer programs in general, are less subject to the educational regulations and guidelines established by districts, state agencies, or Federal programs; accountability for the content of programs, for attendance levels or for student outcomes is virtually non-existent. Even if one wished to accomplish only the modest goals of counting students or classifying programs nationally, it could not be done. Moreover, given the highly decentralized nature of the programs and the lack of systematic record keeping, adding several items to a survey of SEAs or LEAs would not be an adequate solution. While New York City and State may not be typical, efforts to discover how many students attended summer school in 1985 in either the state or the district generated considerable hilarity among informants.

The primary reason that data on summer programs are so difficult to obtain is that there are no national guidelines for data collection, nor any Federal agency that attempts to monitor programs. To be sure, there are a number of Federal programs which fund summer schools; in fact, it is likely that more Federal dollars are spent per student enrolled in summer education than in regular school. However, summer schools tend to be and to be seen as peripheral to the primary mission of these programs. Four programs, in particular, deserve some attention in this regard: Head Start, Chapter 1 Regular, Chapter 1 Migrant, and Programs for the Handicapped.

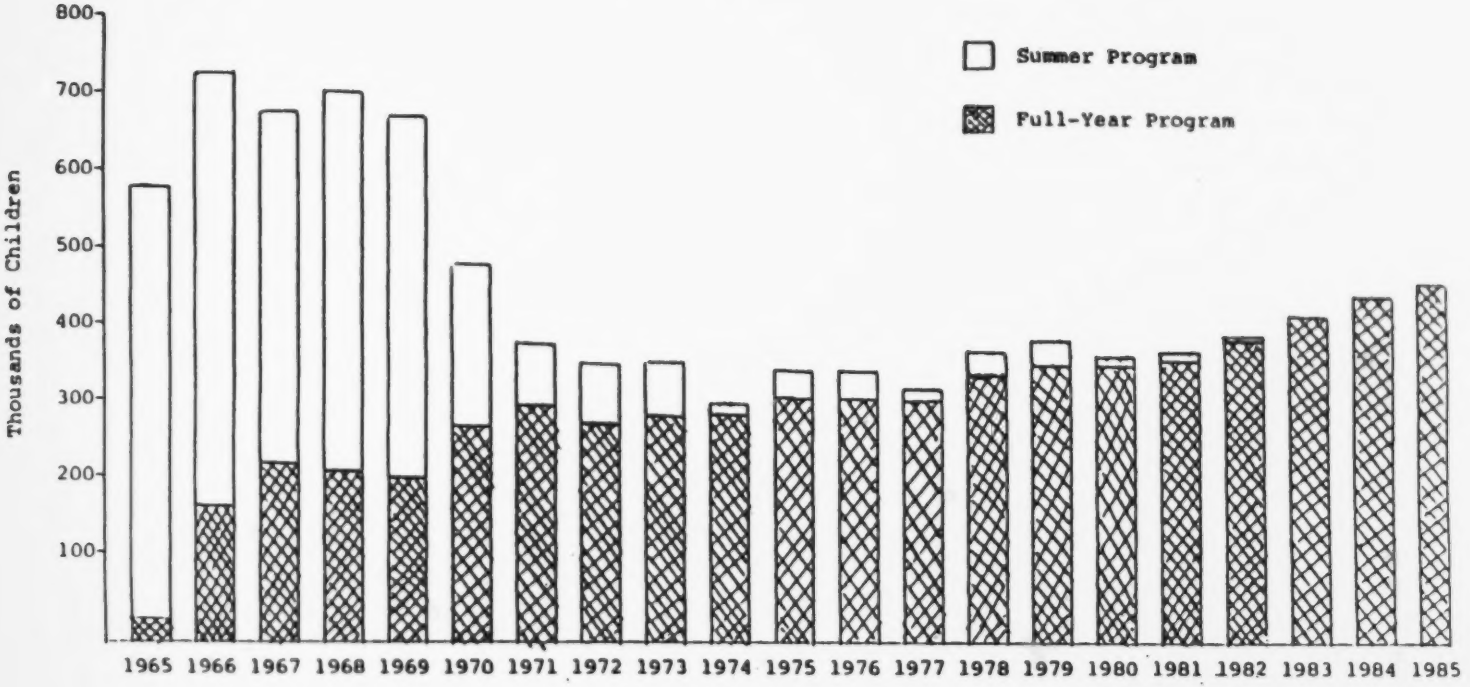
Head Start

Despite criticism, controversy, and several concerted attempts to reduce funding, Head Start survives as a major Federal program, with a budget in excess of a billion dollars. The original design for Head Start was, it should be remembered, as a six week summer program for pre-school children. In 1965, Head Start summer programs enrolled over half a million children, while the full-year programs involved fewer than 50,000. During the first five years, full-year programs expanded dramatically, while summer programs shrank in size. Since the early 1970s, full-year programs have grown steadily, gradually replacing summer Head Start entirely. In 1982, funding for all summer Head Start programs was discontinued; since that time, no data are available on pre-primary summer programs. Figure III-1 summarizes the enrollment data, by year and type of program, for the last two decades.

No one seems quite certain why summer Head Start programs were discontinued. Early evaluations demonstrated that full-year Head Start had more positive effects than the summer programs (Smith & Bissell, 1970); however, the cognitive benefits of Head Start, whether based on the summer or the school year, have never been the most compelling reason for continued support. Perhaps the continuity provided by year-round staff and students influenced the shift. Perhaps parental demand was the major factor. In any event, there are no longer any federally funded summer Head Start programs; consequently, there are no recent data on either enrollments or effects.

Chapter 1 Regular

Even before the Educational Consolidation and Improvement Act of 1981 was approved by Congress, Title I as it was then called, had ceased to collect data on summer compensatory programs. The last year in which enrollments were tabulated separately for the summer and the school year was 1979-80. In that year, 314,000 students were enrolled in summer compensatory education, approximately 15 percent of the total students served. The current Chapter 1 reporting guidelines require enrollment breakdowns for the "regular term," by grade, race, gender, age of child, and whether enrolled in a public or nonpublic school. Staff and services for the summer are not counted separately; nor is there information on how many school or summer services represent duplicate counts. Most children receive several different kinds of non-instructional or support services simultaneously, such as transportation, medical or dental exams, and counseling; how, when and to whom they are allocated is not clear. There is some evidence that Title I funds for summer compensatory education were channeled to support existing programs in several relatively disadvantaged



Source: J. B. Richmond, D. J. Stipek, & E. Zigler. (1979). A decade of Head Start. In E. Ziger & J. Valentine (Eds.), Project Head Start: A legacy of the war on poverty. New York: The Free Press.

F. Beamer, Head Start Bureau, Administration for Children, Youth, and Families, U.S. Department of Health and Human Services. Personal communication. May 16, 1986.

Figure III-1. Number of Children Served in Head Start Summer and Full-Year Programs

districts. However, we do not now know whether Chapter 1 funds continue to be used in this way, whether those summer programs have been cut back, or to what extent schools provide summer remediation to any extent.

Major policy reforms in the early 1980s substantially reduced both the paper work and the accountability of Chapter 1 programs. Uniform evaluation measures, such as the Title I Evaluation and Reporting System (TIERS), are no longer required in order to receive funding. Chapter 1 does specify that "the local education agency will keep such records and provide such information as may be required for fiscal audit and program evaluation." Both the local and the state education agencies must assure that programs "...be evaluated in terms of their effectiveness...and that such evaluation shall include objective measurements of education achievement in basic skills and determination of whether improved performance is sustained over a period of more than one year" (Plato, 1985). In 1983, the technical amendments further specified that each state agency should conduct an evaluation of the programs assisted under this chapter "at least every two years and shall make public the results."

These requirements are quite minimal; specific models and evaluation designs are left to the state and local level. Under such regulations it is possible that no two states will ever conduct or publish comparable evaluations. It is likely that most states will never evaluate summer programs, even to the extent of collecting descriptive data or enrollment trends. Although the "New Federalism" has cut down on paper work, it is important to ask whether sufficient data remain that are relevant to the effects of compensatory education and that can be aggregated across states. With respect to summer programs, it is clear that we know next to nothing about the distribution or effects of compensatory education.

Chapter 1 Migrant Education

Extensive educational services are provided to the children of migrant laborers through funds authorized by ECIA Chapter 1 Migrant (P.L. 97-35). Over 2,000 districts, in 47 states operate programs for migrant education; the Federal government currently spends about 264 million dollars annually in support of these programs, which involve over 600,000 children each year (Plato, 1984). In 1982, 34 states offered summer programs in addition to, or instead of, school year programs; three states have year-round migrant programs.

State educational agencies are responsible for monitoring, evaluating, and reporting programs in migrant education. Although the State Performance Reports for Chapter 1 Migrant involve detailed data, reports are not uniform across states.

State Performance Reports for Chapter 1 Regular and for Chapter 1 Migrant differ in key respects. In particular, the reports for migrant programs specify unduplicated counts for regular year and summer programs separately by grade level; instructional and support services, as well as staff data, are tabulated as unduplicated reports separately by term as well. Chapter 1 Regular collects no data on summer programs at all; categories of support services represent duplicated counts in Chapter 1 Regular, and hence cannot be compared across participants (Plato, 1985). It would seem that much better data exists on summer school attendance for migrant children than for children participating in compensatory education generally. Ironically, summer programs, which originated as a solution for idleness and potential mischief among urban children, are carefully monitored only when provided to the children of migrant farm laborers.

Despite the more elaborate performance reports, national data on summer programs for migrants are difficult to assemble. State policies regarding data collection and program evaluation differ widely; there have been few efforts to aggregate state-level data. Plato (1984) estimated that 225,752 children were served in 1981-82, in regular school year reading programs in 42 states. Approximately 11,000 students received summer reading instruction and 14,659 enrolled in summer math programs in nine states. (These states were Alabama, Arizona, Illinois, Michigan, Ohio, Oregon, Tennessee, Washington, and Wisconsin.) For the nine states reporting basic skills instruction in the summer, summer enrollments were 58 percent and 118 percent of regular term enrollments in reading and math, respectively. In Washington, state programs serve approximately half the eligible migrant population. Summer programs average between 17 to 30 percent of the children served during the regular term.

Performance reports require evaluation of both Chapter 1 Regular and Chapter 1 Migrant every two years (Plato, 1985). However, no models are specified and information on the type or duration of services is not collected. State policies regarding data collection and program evaluation differ widely; although a number of states still use the Title I evaluation models (TIERS), aggregating such evaluations can be highly misleading. Although data on summer programs for migrants are available at the state level, it is not clear that the state programs are comparable. It is clear that comparisons between Chapter 1 Regular and Chapter 1 Migrant cannot be made (Plato, 1985).

Education for the Handicapped

A recent impetus for summer programs has come from an unexpected direction. In Armstrong v. Kline, the U.S. District

Court for Eastern Pennsylvania held in a class action suit that the traditional 180 day school year did not constitute a free and appropriate education pursuant to the provisions of P.L. 94-142. The Court ruled that the State Department of Education and local school districts are required to provide an extended year program for handicapped children if "the interruption in educational programming causes a regression that, together with the student's limited recoupment capacity, render it impossible or unlikely that the student will attain the level of self-sufficiency and independence from caretakers that the student would otherwise be expected to reach" (Remedial Order #2; Published subsequent to Armstrong v. Kline (1979); cited by Helmich, 1982).

This decision, which was upheld by U.S. Third Circuit Court of Appeals (Battle v. Commonwealth, 1980) has a number of ramifications for school programming (Stotland & Mancuso, 1981). It has been cited in similar cases in New Hampshire, Georgia, Oregon, Michigan, and Wisconsin. In these cases, the courts have struck down state codes or provisions that precluded free extended year programs, on the grounds that an explicit prohibition of such programs was a violation of P.L. 94-142. In effect, the courts have held that year-round schooling may be a necessary component of the "free, appropriate public education" mandated by Federal statute for handicapped children. While the courts have ruled that summer programs, when needed, should be free, they have been less willing to dictate the creation of such programs or to specify the amount of "summer regression" that called for an educational remedy. In particular cases, the courts have not been persuaded that an absence of summer school constituted a substantial threat of irreparable or non-recoverable injury, which was the criteria in Armstrong v. Kline. In Michigan, the courts ruled that if a child's individualized educational plan (IEP) included special educational services in the summer, the fact that programs were not offered did not remove the burden of responsibility from the schools for providing them (Birmingham and Lamphere School Districts v. Superintendent of Instruction for the State of Michigan, 1982).

It is not clear what, if any, effect these decisions have had on the provision or operation of summer schools generally. In Pennsylvania, during the first summer after Armstrong v. Kline, over 2,000 children enrolled in summer school programs at a cost of 2.6 million dollars (Larsen, Goodman, & Glean, 1981). In Illinois, which has not as yet experienced litigaion on summer school issues, 26 due process hearing decisions involving summer services were appealed to the State Superintendent in 1981 (Helmich, 1982). The legal opinion written at that time by the Legal Advisor to the Illinois State Board of Education, although equivocal about eligibility or procedural requirements, emphasized that if the IEP directs provision of

summer school services, an extended year should be available at no cost to parents. In Illinois, the number of districts submitting applications for summer school nearly doubled between 1979 and 1981, from 366 to 667 (Helmich, 1982).

At present, the courts seem to have concurred that summer loss or regression is typical, and may necessitate extended year programs. A statute or a school code limiting educational responsibilities to 180 days a year or to any other arbitrary period of time is, hence, incompatible with P.L. 94-142; such statutes cannot, therefore, be used to avoid the costs or responsibilities of summer programs for the handicapped. Moreover, if summer programs are available to handicapped students, denying them to non-handicapped students is probably a violation of equal opportunity (Leonard, 1981). Only one case, involving the Georgia Association for Retarded Citizens v. Dr. Charles McDaniel, has been appealed to the Supreme Court, and the Court has decided not to hear it (Lehr & Haubrich, 1986). However, given the importance of the issues and the potential costs entailed in providing services, it seems likely that further judicial opinions will be forthcoming.

The literature on summer programs for the handicapped is largely descriptive; there have been a handful of small-scale evaluations, but no experimental studies. Edgar, Spence, and Kenowitz (1977) and Helmich (1982) report fairly extensive research reviews and conclude that there is little evidence to support long-range benefits of summer programs. The bulk of the studies do report a summer drop-off, at least on standardized skills, but this seems to exist independently of program participation.

The objectives of summer programs for the handicapped tend to vary considerably. Even when skill acquisition has priority, it is not clear that gains in reading Braille, overcoming hearing impairments, or developing coordination can be evaluated with a common metric. Reviewing descriptive program accounts leaves the clear impression that summer programs for the handicapped, like summer schooling generally, are designed to do everything school does, much of what school cannot do, and, in addition, be fun. While it is difficult to fault programs promising camping, cultural enrichment, enhanced self-esteem, social development, and remedial learning, the diversity of goals defies comparisons, if not evaluation altogether.

Given the diversity of programs, and the disinterest on the part of Federal agencies in promulgating guidelines for data collection or evaluation, it is surprising that anything can be said about program effectiveness. Research on summer programs tends to be scattered and largely descriptive;

systematic evaluations, which are few in number, offer little if any evidence that such programs might yield impressive cognitive gains for participants. Despite this discouraging assessment, I will argue that we stand to learn more about intellectual development and cognitive growth by studying summer learning than by any other means.

Literature Review

Early studies of summer learning focused on patterns of retention, rather than growth. Issues such as the most effective curriculum for fall review (Cook, 1942, 1952) or whether the material children forgot was specific to particular subject matter dominated the field. The majority of studies found that reading, vocabulary, and language skills change little if at all during the summer, while math and spelling tend to decline (Beggs & Hieronymus, 1968; Brueckner & Distad, 1924; Elder, 1927; Garfinkle, 1919; Irmina, 1928; Keys & Lawson, 1937; Kolberg, 1934; Morgan, 1929; Morrison, 1924; North, 1955; Nelson, 1929; Parsley & Powell, 1962; Patterson & Rensselaer, 1925; Schrepel & Laslett, 1936; Soar & Soar, 1969; Sterrett & Davis, 1954). Certain skills, however, have been found to improve, such as handwriting (Nelson, 1929) and nature study (Bruene, 1928), although one cannot ignore the fact that these skills may improve with maturation or practice, rather than instruction. Skills taught through drill, or subjects that require specific facts and information tend to show greater summer loss. A number of analysts have believed that highly motivated students, capable of autonomous learning do better in the summer months (Soar & Soar, 1969). Intelligent students generally show higher levels of retention than those less gifted (Bruene, 1928; Cook, 1942; Schrepel & Laslett, 1936).

By contemporary standards, these studies are neither convincing nor conclusive. Without exception, the samples are small and unrepresentative; control groups are rarely present; family conditions, socioeconomic factors and summer activities are unmeasured. The tests used by the authors are, as one might suspect, idiosyncratic and generally not normed for any standard population.

Recent studies of summer learning have focused on two sorts of questions. First, to what extent do the patterns of summer learning differ for children from different backgrounds; and, secondly, how do compensatory summer programs influence outcomes. Hayes and Grether (1969) and Hayes and King (1974) compared summer learning rates in Black and Puerto Rican schools with those in all-White schools. Irrespective of grade, reading scores in the minority schools consistently lagged behind those observed in all-White schools. As Hayes and Grether (1969, p. 7) report, "upward of 80 percent of the

difference between the economically advantaged all-White schools and the all-Black and Puerto Rican schools" could be accounted for by differential summer programs.

Murnane (1975) collected longitudinal achievement data on second and third graders in New Haven for two years. He found that White children consistently did better than either Black or Spanish-speaking children, although summer loss was true for all children irrespective of race.

Pelavin and David (1977) and David and Pelavin (1978) studied four compensatory education programs using longitudinal data. Again, they found substantial loss among compensatory education students on the Gates-MacGinitie Reading Test for students in grades three through eight during the summer months. These reports found their largest audience in the evaluation community; the conclusion that seems to have had the most impact is that Title I evaluations should be based on 12-month data, rather than the school year alone. Later evaluations of compensatory programs, such as the Sustaining Effects Study, were concerned to show that summer loss did not vitiate positive findings from 9-month studies. The question of how much learning occurs, or whether the patterning of gains is meaningful, seems to have been lost.

Hammond and Frechtling (1979) studied reading and math achievement in 400 first- and third-grade classrooms as part of the Instructional Dimensions Study (IDS). In all cases, the school year gains of compensatory education students exceeded that of the non-compensatory education students, while the summer gains showed the reverse trend. During the spring to fall interval, that is the summer, the first- and third-grade compensatory education students fell behind their classmates in both reading and math. Hammond and Frechtling do not find, however, that summer school programs have much impact on this trend.

The only study to date that has looked at summer learning patterns without the lens of compensatory education is Heyns (1978). Longitudinal data for fifth-, sixth-, and seventh-grade students was collected in 42 Atlanta schools. The purpose of this study was to assess the degree to which longitudinal learning patterns might provide a more precise assessment of the effects of schools than could be made with existing data on patterns between schools. The purpose was to use summer as a temporal control for schooling; since children are influenced by families and peers year-round, the purpose was to use summer as a quasi-experimental control for "schooling," to measure, in effect, "non-schooling."

These data strongly support the existence of differential summer learning. During the summer, the majority of children

learn less rapidly than during the school year. Moreover, during the summer socioeconomic and racial inequality increases dramatically. Summer schools do not, it should be stressed, remedy the situation; however, the summer programs in Atlanta were not, in general, intended to promote growth. These programs were short, voluntary, and devoted to fun as much as to educational compensation.

These studies, insofar as substantive generalizations are possible, tend to agree to a remarkable degree. Major problems for the analyst remain; the next section reviews the conceptual and methodological difficulties in assessing summer programs.

Evaluating Summer Losses

There are recurring dilemmas in assessing summer programs, compensatory or otherwise, that seem intractable both conceptually and methodologically. The problems afflict virtually all of the research in this area; moreover, they obviate the likelihood of conducting a synthesis or meta-analysis of findings.

As we have seen, researchers have studied a number of distinct issues regarding summer learning. Although the issues are related conceptually, they invite quite different analytic strategies and conclusions. First, the problem has frequently been defined as retention, rather than cognitive growth; consequently, analysts have been concerned with the magnitude or the distribution of summer loss. Secondly, the retention issue is rarely defined as a comparison between rates of cognitive growth in the school year and the summer, or as relative learning in a temporal framework. Few analysts have looked at cognitive growth as a temporal phenomenon, at all; we do not have reasonable models for growth, short of expecting linear rates year-round. The logic of seasonal growth patterns leads directly to the question of whether children learn more or less during fixed periods of time, and whether one can analyze growth as a cumulative process. These questions are problematic for all evaluation studies. Summer programs insofar as they have been evaluated, are typically viewed as an educational treatment in an experimental or quasi-experimental framework; hence, the primary question is whether participants fare better than non-participants. Third, but only recently, the summer months have been examined as a time in which relative gains and losses mattered; therefore, researchers have been concerned with comparing the patterning of test scores for high or low achievers, for White or minority students, or for children from more or less advantaged families.

Each of these conceptual perspectives invites conclusions that depend on untested methodological assumptions. First, to my knowledge, there has never been a psychology of cognitive

forgetting; one must assume that the de-learning process is somehow the reverse of learning. Second, although there has been substantial progress in comparisons across studies, we still do not have a certain method of comparing gains or losses on different test instruments. And finally, once one embarks on a longitudinal evaluation of relative progress, one immediately wonders whether the metrics of achievement assigned to tests can support the assumptions one wishes to make. I have written extensively about these problems (Heyns, 1978, 1980); they still seem quite intractable and particularly so for studies that wish to assess relative summer growth or to evaluate summer programs. An insignificant gain (or loss) is only meaningful in the context of how much gain (or loss) should be expected in a specific time period. A small gain, even when not significantly different from zero can be more actual learning month-by-month than a significant gain for a longer period of time. When true experimental data cannot be collected, the issue of norms or expected gains becomes far more important for conclusions.

The varying conceptual models that underlie assessments of summer growth have analytic implications as well (Deck & Arter, 1981). Summer loss, particularly among disadvantaged populations or children who are eligible or enrolled in compensatory education, may cast doubt on the "real" effectiveness of school year programs, even though slower summer growth may be quite general. Evaluation designs that include a pretest/posttest framework do not typically involve a correction factor for program duration; short-term intensive programs tend to be evaluated with the same statistical expectations as programs with a longer frame of reference. Insofar as regression effects seem ubiquitous in educational research, it is quite difficult to compare the rates of learning for children who fall on different parts of the achievement distribution. Disentangling summer gains or losses by comparing the performance of low- or high-achieving students is, to say the least, complex.

In practice, these issues have cropped up in virtually every longitudinal study of summer learning that has been done. The conclusions reached by analysts are, typically, equivocal about one or more of the outcomes. Without exception, the studies have relied on test scores and data collection procedures that were designed for studying school learning. Moreover, diametrically opposed conclusions can be drawn from exactly the same data, depending on the conceptual and methodological assumptions. To illustrate, let us review the findings and conclusions written by or attributed to the single most comprehensive study of summer learning yet undertaken, the Sustaining Effects Study.

Sustaining Effects Study

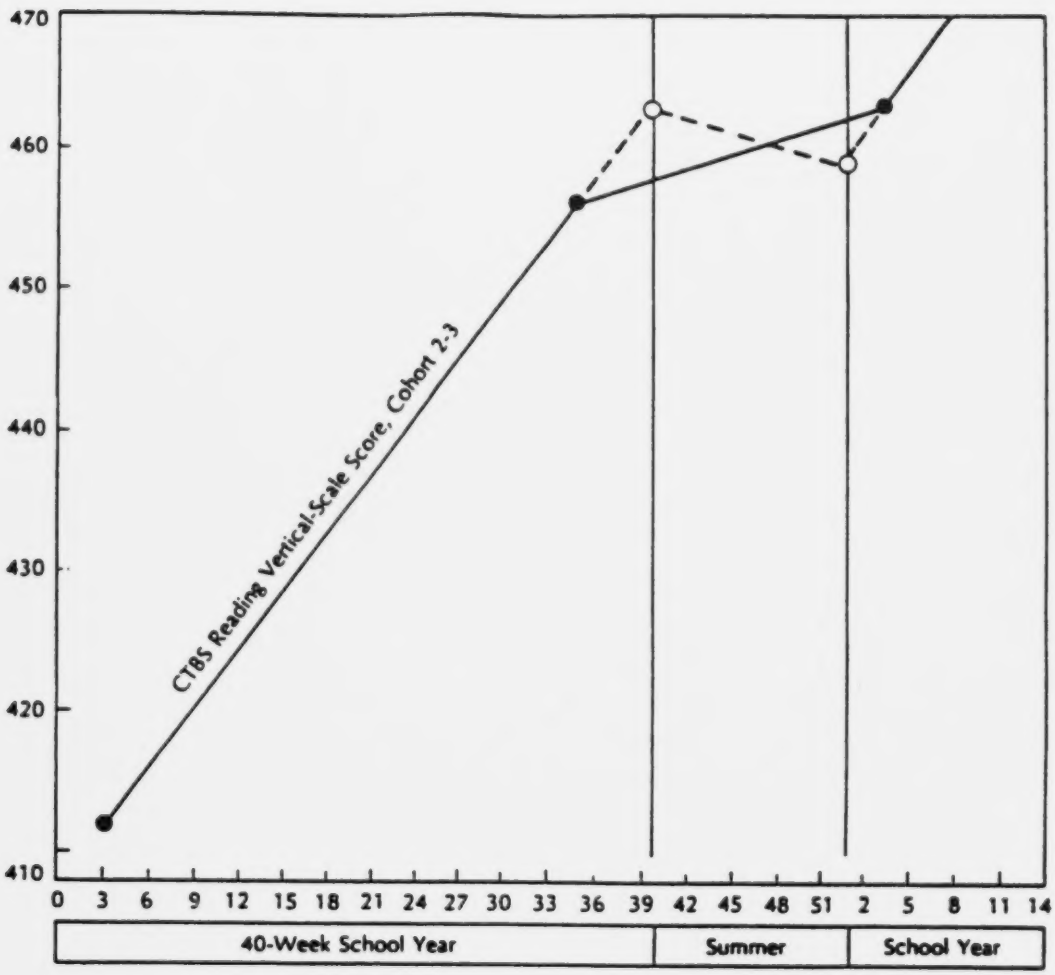
The only national study of summer learning that has been conducted, and by far the largest single study, is the Sustaining Effects Study (SES). Begun in 1975, the SES collected longitudinal data for three successive school years on over 100,000 students in some 300 elementary schools throughout the country. Among the fifteen volumes published by the primary contractor, the System Development Corporation of Santa Monica, California, one entire report was devoted to summer growth (Klibanoff & Haggart, 1981).

The primary questions posed by the SES concern the allocation, costs, effects, and the sustained effects of compensatory education among elementary school students. Academic achievement in reading and math was assessed by the Comprehensive Test of Basic Skills, although a small number of particular items were eliminated because they were judged culturally or racially biased (Hemenway et al., 1978). Vertical scale scores were developed for these tests, by projecting national test score distributions from the first year of the study. The testing schedule, was established as the third and fourth week of classes in the fall and about five weeks before classes ended in the spring, and apparently most schools conformed to this schedule (Klibanoff & Haggart, 1981).

The first major finding of this study was that no absolute summer loss existed for students in the summer. Reading gains exceeded math gains, and there seems to be a possibility that math losses occur at the higher grades (Carter, 1984; Klibanoff & Haggart, 1981).

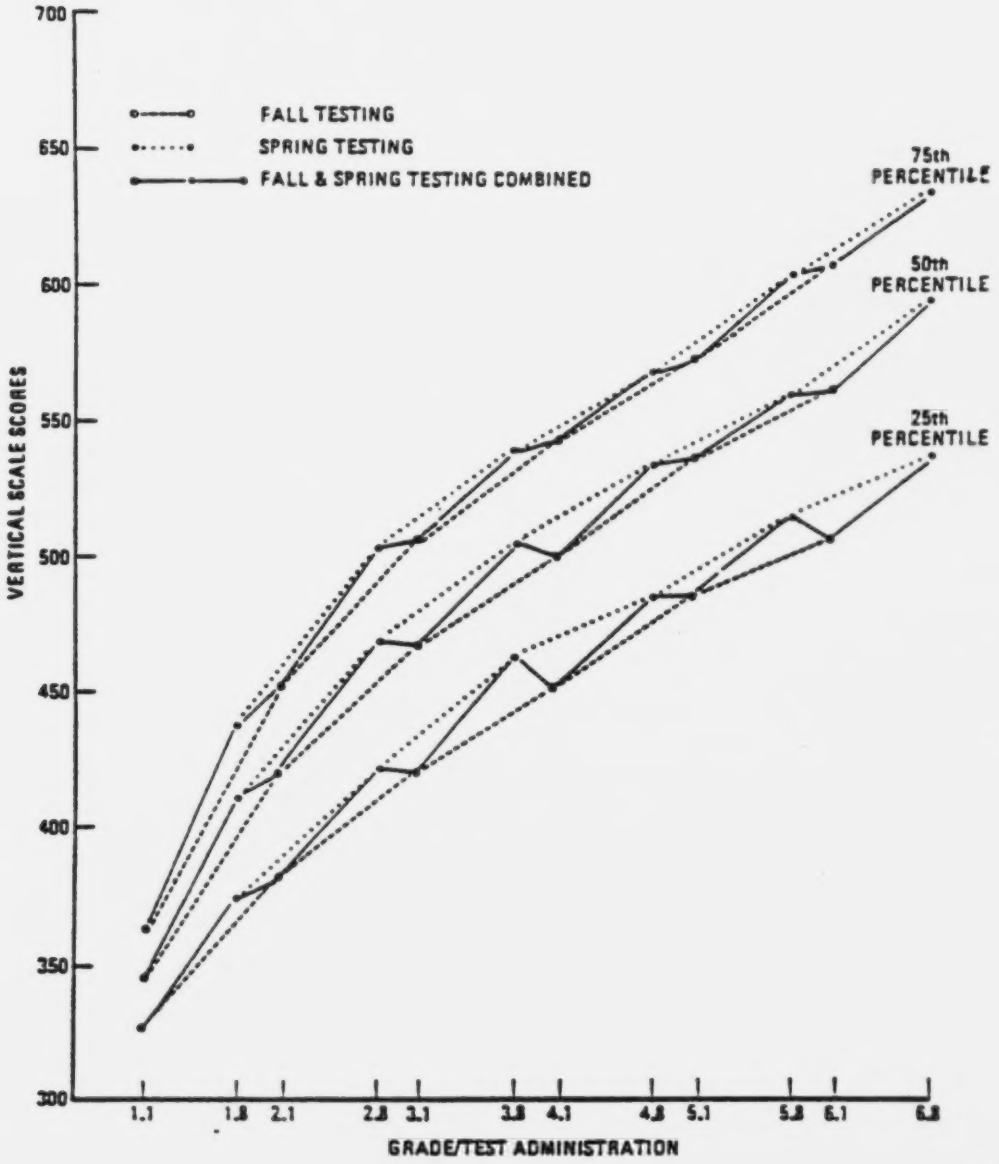
This finding is entirely due to the adjustments made for the testing schedule. As Klibanoff and Haggart (1981) demonstrate, an absolute drop-off occurs if one extrapolates learning rates to the end of the school year or to the beginning of the fall (see Figure III-2). They admit that the testing procedures may err in favor of finding positive growth during the summer, since eight or nine weeks of regular schooling are included in the period defined as the summer for their model. If one looks at the actual test scores, however, a considerably different picture emerges (see Figures III-3 and III-4).

In terms of relative gains or losses, the standardized achievement scores presented by Carter suggest that Title I students in grades one through four, lose relative ground during the summer each and every year (Carter, 1984), although this is not mentioned directly. The only students with any gains during the summer are those not enrolled in Title I, the regular or non-compensatory education students. Neither Klibanoff and Haggart (1981) nor Carter (1984) claim that



Source: Klibanoff and Haggart (1981), Figure 1-1, p.6.

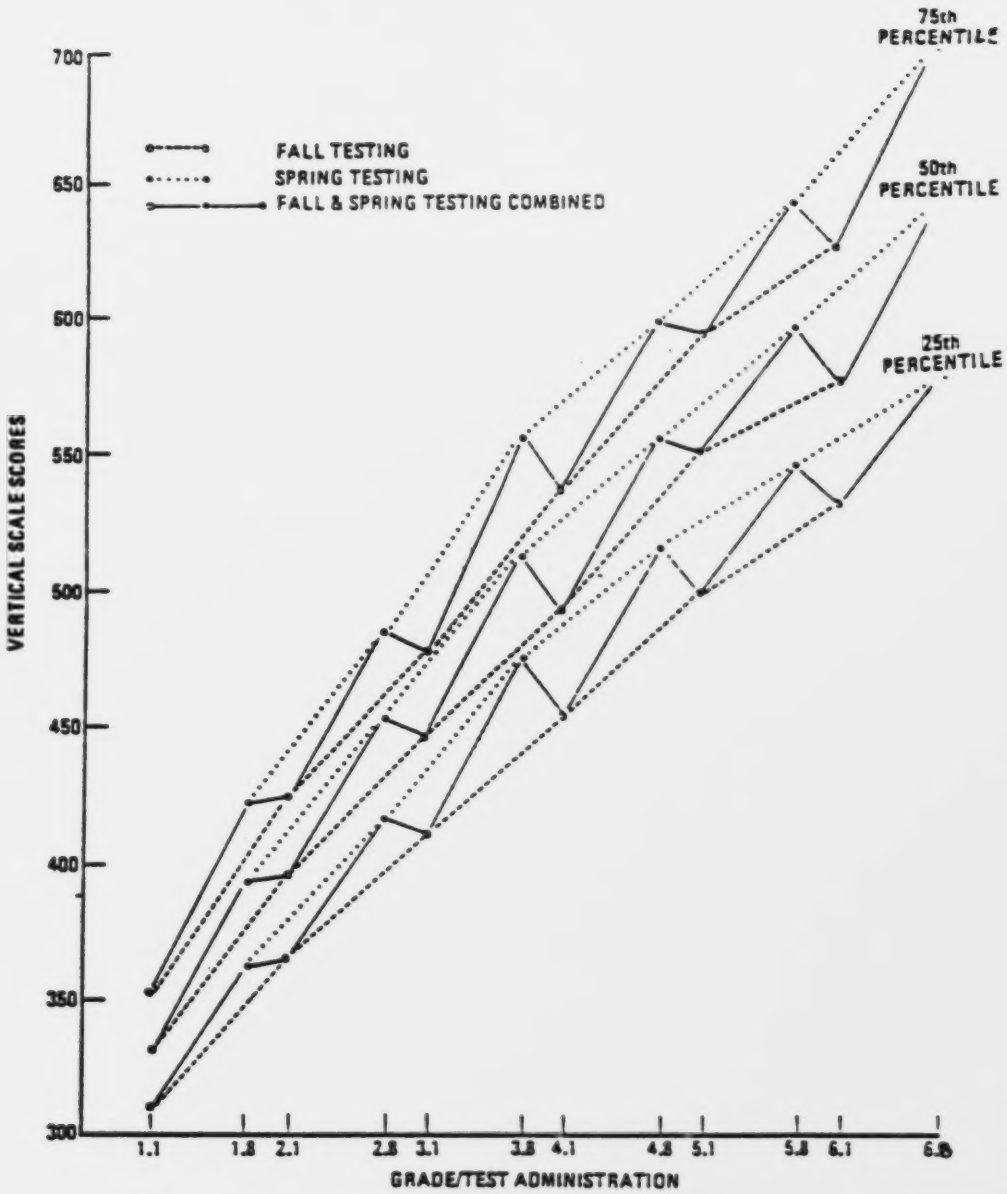
Figure III-2. Scaling Issues in the Sustaining Effects Study of Achievement Growth During the Summer



The spring-to-fall differences are always associated with cross-sectional changes in samples and are frequently also associated with differences in test levels. Negative "growth", when it occurs, may be attributed to sample differences and test-level differences. When raw scores are compared for the same test levels, the differences are either positive or small when negative. Therefore, the zig-zag nature of the curves above should not be carelessly attributed to "summer drop-off."

Source: Hemenway et al. (1978), Figure 1-1, p. 29.

Figure III-3. Vertical Scale Scores as a Function of Grade Level by Quartiles for the Debiased CTBS Reading Test



The spring-to-fall differences are always associated with cross-sectional changes in samples and are frequently also associated with differences in test levels. Negative "growth," when it occurs, may be attributed to sample differences and test-level differences. When raw scores are compared for the same test levels, the differences are either positive or small when negative. Therefore, the zig-zag nature of the curves above should not be carelessly attributed to "summer drop-off."

Source: Hemenway et al. (1978), Figure 1-2, p. 30.

Figure III-4. Vertical Scale Scores as a Function of Grade Level by Quartiles for the Debiased CTBS Math Test

students learn as rapidly in the summer as the school year; their data show a pronounced slow-down during the summer months for everyone. Carter describes the summer reading gains as "large" (p. 8), while Klibanoff and Haggart (1981) note that compensatory education students "tend to make smaller gains over the summer than do non-compensatory education students" (p. 31). Yet their primary goal is showing that an absolute loss does not occur.

A second major finding is that summer programs are not related to summer growth; compensatory education students attending summer school do not show greater growth than those not attending. Hence, the evidence does not "provide much, if any, support for the effectiveness or cost-effectiveness of summer school" (p. 21). This conclusion, which is doubtless true, follows analyses that demonstrate repeatedly that very small or negligible gains are made during the summer months for any cohort. The authors note that summer programs are short, and "are not particularly intensive treatments" (p. 84); although compensatory education students are more likely to enroll, and to receive disproportionate resources, they do not seem effective. The fact that gains are trivial during the summer, whether or not students attend summer school, becomes prima facie evidence for the ineffectiveness of summer programs.

The Sustaining Effects Study did not apparently explore regression effects very seriously. Carter (1984) concludes that "high gainers tend to lose over the summer, whereas low gainers tend to gain" (p. 8). Klibanoff and Haggart (1981) also report an inverse relationship between summer changes and those in the preceding school year; this is interpreted as an artifact of regression when applied to students in high-gaining programs during the school year who showed greater losses (p. 46) or when the incidence of summer losses in mathematics is concentrated among high achievers (p. 41). There is less mention of regression artifacts when considering the gains of compensatory education students, in either the school year or the summer.

Any analysis of longitudinal change involves measurement error and regression effects. The major unresolved problem from a statistical point of view is that there are few models suggesting how or why test-score reliability should vary across time. One might expect greater reliability and less measurement error when comparing a pretest and a posttest separated by only three months. Alternatively perhaps, differences in test administration between the fall and the spring are sufficiently great to wash out differences due to growth. The models developed for Atlanta (Heyns, 1980) imply that within parallel batteries, reliability tends to increase over time. (Klibanoff and Haggart also show that for non-compensatory education

programs the portion of the variance explained by the pretest increases over time for successive cohorts.) However, this could be explained as "practice effects," as "scale effects," or as declining errors of measurement (Heyns, 1980).

The major important finding from the SES, unlike those discussed above, seems to have escaped the various summaries. Consistently, Klibanoff and Haggart (1981) show greater summer losses for compensatory education students than for non-compensatory education students. Among Title I students as well, when children are classified by achievement level, by minority status, or by participation in nutrition programs (a proxy for family economic status), "disadvantaged students tend to grow at a slightly slower rate over the summer than do their non-disadvantaged peers" (p.47). While the authors reiterate that "summer-loss is not as prevalent a phenomenon as policy makers had feared," their evidence clearly points to a consistent relative loss among the least advantaged children. This finding confirms the conclusions and analyses of Summer Learning and the Effects of Schooling (Heyns, 1978) to a remarkable extent. Although the Sustaining Effects Study necessarily focused on Title I programs, the patterning of gains and losses in a national sample are remarkably consistent with those for a single school district. Moreover, the description of summer programs, the levels of participation, and the generally insignificant effects are also consistent. Since Summer Learning and the Effect of Schooling collected data on only two cohorts, for two years, the generally consistent findings based on six grades studied for three years are reassuring.

The studies reviewed to date have dealt exclusively with elementary school students. Although high schools are more likely to sponsor summer school programs, there has been far less attention paid to student outcomes at this level. The major exception is a recent demonstration project funded, in part, by the Ford Foundation, the Summer Training and Education Program (STEP), designed and managed by Public/Private Ventures (Branch, Milliner, and Bumbaugh, 1986). To this program we now turn.

The Summer Training and Education Program

The STEP program, which is about to enter its second summer of operation, is an experimental intervention conducted in five urban sites. The initial program involved 1,593 fourteen- and fifteen-year-olds provided with both academic remediation, and instruction in life skills, as well as the work experience provided under the Summer Youth Employment and Training Program (SYETP). Eligible youth in the five sites were randomly assigned to a STEP program or to the regular SYETP work experience, and both treatment and control students

were compensated at the same rate--$3.35 per hour. The STEP remediation component provides 90 hours of basic skill instruction in reading and math, in an individualized and self-paced curriculum, utilizing computer-assisted instruction (CAI) for 25 percent of the remediation.

In general, both treatment and control students took the intermediate battery of the Metropolitan Achievement Test on the first day of the program and after seven or eight weeks. Attrition from the STEP program and poor attendance were low; over 90 percent of those pretested also took the posttest. In addition, in order to insure that students would be motivated to do their best on the pretest and posttest, special fees based on a lottery were introduced at each testing site and period.

The incentive scheme developed by Public/Private Ventures is, to my knowledge, a unique aspect of the program evaluation. Students were not paid for each correct answer, which would be a very costly solution; rather each correct response entitled students to one additional change to win in a lottery held after the testing. Fifteen winners of $50.00 each were selected at each site at each test administration for both treatment and control students. The lottery scheme seems an elegant solution to providing monetary incentives for correct answers that are sufficiently large to interest individual students, yet sufficiently economical so as not to bankrupt an evaluation budget.

Despite the incentives to do well on the tests, and despite the extensive remediation, both the treatment and the control students tended to lose ground during the summer. However, the treatment students lost significantly less in both reading and math than did the control students. Treatment students scored about one-quarter of a grade equivalent more than did the control students who received no remediation. Hispanics and Asians benefited the most from the treatment. Girls benefited in both reading and math, while the score of treatment and control boys were significantly different only in math. In three sites, significant differences in achievement favored the treatment students; in two sites differences were not significant but favored the treatment students. For the full sample, participation in STEP was worth 12.6 points on the math test and 5.7 points on reading (Branch, Milliner, & Bumbaugh, 1986, p. 72).

The research evaluating the STEP program is novel in both the care with which the experimental design was implemented and the incentives offered to students to take the test seriously. If either condition had not been present, the results would seem far more equivocal. Even with such precautions, however, the report is forced to explain how an achievement loss is

really a positive program effect. In order to convince SYETP administrators nation-wide that summer educational remediation is worthwhile, STEP must argue that stemming summer losses in basic skills is a reasonable goal. While in educational circles, the logic of such arguments is clear, it is not certain that it will carry weight in the employment and training world. If treatment condition students show lower rates of dropping-out, perhaps that will be convincing.

Summer Loss in College Studies

Outcomes among university students are sufficiently far from elementary and secondary schools as to be non-comparable. However, at least one study has concluded that the summer is a critical period for disadvantaged college students (Kapsis, Protash, & Levin, 1984). In a longitudinal study of City University of New York freshmen, Kapsis and his associates report that during the school year advantaged and disadvantaged students tend to leave school at the same rate; during the summer, however, disadvantaged students and particularly those who have done poorly, experience the most pressure to drop out of school. Among those attending summer programs, however, re-enrollment rates do not vary by background. The authors argue that relatively advantaged students are involved in summer activities that reinforce educational commitments; students with less encouraging family backgrounds, however, are more likely to need or profit from year-round schooling.

Conclusions

The purpose of this paper has been two-fold; first, to summarize the deficiencies of data available on summer schools and second, to provide a context for analyzing and interpreting the results from the several evaluations that do exist. In the process it has been useful to review the studies that have been completed. Within a fairly broad conceptual framework, it seems there is substantial consensus among analysts. Although one can generalize across studies, the findings do not necessarily suggest new directions for research on summer programs.

There is virtually no information on existing summer school programs, even those that are partially funded by the Federal government. The content, structure, enrollment, duration and costs are not known. Moreover, anecdotal information and impressions suggest these programs are considerably more diverse and difficult to classify than regular school year programs, even when nominally devoted to comparable tasks such as compensatory programs.

The best evidence on the effectiveness of summer programs suggests they are not unequivocally successful. The major caveats to this conclusion are first, the programs tend to be short, voluntary half-day interventions with little semblance to regular programs and second, we do not have a clear criterion for effectiveness. The great majority of studies have observed relatively slower growth during the summer months; it is not clear whether effectiveness should be measured as "gains" or as "arrested declines." Without a valid expected growth curve, based on a metric sensitive to varying intervals of time, it is difficult to infer how particular treatments alter the pattern. Moreover, it seems likely that it is relative growth, not absolute change, that is the more important factor. Since standardized tests are normed on sample populations of children, rather than longitudinal observations, it may be that the most accurate inferences of change concern relative standing, not absolute growth or decline.

In sum, the major obstacles to Chapter 1 evaluations is the absence of appropriate comparisons. Without data on existing programs, it is difficult to say how any particular compensatory education program changes the educational context. Without a valid model of learning rates over time, it is difficult to infer change. While I trust these are not insurmountable difficulties, they are enormous challenges.

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